

CLAIMS

What is claimed is:

1. An apparatus comprising:
a plurality of interposer contact pads on a first side of a generally planar interposer, the interposer contact pads aligned on the first side to contact a plurality of first contacts of a first electronic device;
a plurality of pressure contacts formed in the interposer, the pressure contacts having a contact surface on the second side of the interposer to removably contact a plurality of second contacts of a second electronic device;
a plurality of electrical connections between the interposer contact pads and the pressure contacts;
wherein the pressure contacts and the contact surface are directionally deformable in a direction from the second side of the generally planar interposer towards the first side.
2. The apparatus of claim 1, wherein the interposer has a spacing of the pressure contacts relative to the interposer contact pads to simultaneously physically align and simultaneously electronically connect the first contacts with the second contacts.
3. The apparatus of claim 2, wherein the spacing is between 15 mils and 50 mils in distance between a center of the interposer contact pads and a center of the pressure contacts to simultaneously electronically connect a plurality of contact pads of a land grid array (LGA) and a plurality of contact pads of a printed circuit board (PCB).
4. The apparatus of claim 1, wherein the pressure contacts comply under a contact pressure applied to the contact surface of between 0.2 Newton and 0.6 Newton in pressure applied to the pressure contacts without permanently deforming or damaging the pressure contacts.

5. The apparatus of claim 1, wherein the pressure contacts include a plurality of flexible three-dimensional domes formed in the generally planar interposer under the pressure contacts.
6. The apparatus of claim 1, wherein the pressure contacts have a first height of between 4 mils and 20 mils in distance from a top surface of the contact surface to the first side of a generally planar interposer.
7. The apparatus of claim 6, wherein the pressure contacts have a property such that while a pressure is applied to the top surface, the pressure contact flexes to a second height in distance from a top surface of the contact surface to the first side of the interposer, and wherein the second height is less than the first height by a height difference of between 2 mils and 10 mils in distance.
8. The apparatus of claim 7, wherein the pressure contacts have a modulus of elasticity greater than the pressure applied.
9. The apparatus of claim 1, wherein the generally planar interposer has a thickness of between 1 mil and 20 mils, the contact surface has a thickness of between 0.5 mils and 5 mils, and the interposer contact pads have a thickness of between 0.5 mils and 5 mils.
10. The apparatus of claim 1, wherein the generally planar interposer includes a layer of one of a polyimide, a polyester, a polycarbonate, a Mylar®, a polyvinyl chloride (PVC), a cellulose acetate, and a plastic material.
11. The apparatus of claim 1, wherein the contact surface includes a conductor material having a surface plated or coated with a metal.
12. The apparatus of claim 1, wherein the interposer contact pads are conductive material without a metal coating or plating and are configured to be permanently attached to the first contacts by one of solder, conductive paste, and conductive adhesive.

13. An apparatus comprising:

a generally planar shaped base having a first side, a second side, and a plurality of holes extending through the base from the first side to the second side;

a plurality of interposer contact pads aligned on the first side of the planar shaped base to electronically connect to a plurality of first contact pads of a first electronic device;

a plurality of pressure contacts on the second side of the planar shaped base to form removable electrical pressure connections to a plurality of second contact pads of a second electronic device;

a plurality of traces on the first side electronically connecting the interposer contact pads to a plurality of trace pads;

wherein respective ones of the plurality of trace pads include an electrical connection disposed through one of the plurality of holes to respective ones of the plurality of pressure contacts.

14. The apparatus of claim 13, wherein the trace pad, trace, and interposer contact pad define a dog-bone or dumbbell shape.

15. The apparatus of claim 13, wherein the electrical connection includes one of a plated through hole and a conductive filler in a hole.

16. The apparatus of claim 13, wherein the pressure contacts include a plurality of domes having a dome diameter and a dome height of a plastic material having an elasticity and a thickness sufficient to flex in response to a maximum pressure of between 0.4 Newton and 1.4 Newton in pressure applied to the pressure contacts without permanently deforming or damaging the pressure contacts.

17. The apparatus of claim 16, wherein the pressure contacts have a modulus of elasticity greater than the pressure applied.

18. The apparatus of claim 13, wherein the pressure contacts have a radius of between 2.5 mils and 25 mils in distance; the trace pad, trace, and interposer

contact pad define a length of between 10 mils and 350 mils in distance; and the trace has a width of between 2 mils and 150 mils in distance.

19. The apparatus of claim 13, wherein each pressure contact has a pressure attachment surface to removably attach to a second contact, and there is a spacing of between 20 mils and 80 mils in distance between adjacent pressure attachment surfaces.

20. A method comprising:

forming a plurality of electrically conductive pads on a first side of a formable planar base, the electrically conductive pads aligned on the first side to electronically connect to a first device;

forming a plurality of electrically conductive structures on a second side of the formable planar base;

forming a plurality of electrical connections through the formable planar base from the electrically conductive pads to the electrically conductive structures;

forming a plurality of three-dimensional pressure contacts in the formable planar base at the plurality of electrically conductive pads,

wherein the three-dimensional pressure contacts are directionally deformable in a direction between the electrically conductive pads and the first side, and are configured to removably electronically connect to a second device.

21. The method of claim 20, wherein forming the electrically conductive pads and the electrically conductive structures includes one of a print and etch process, a pattern and etch process, and a screen printed conductor process.

22. The method of claim 20, wherein forming the plurality of three-dimensional pressure contacts includes one of a pressure fixture, a pressure platen, a temperature fixture, and a temperature platen.